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09/824,050	04/03/2001	Akio Ito	109135	9278

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 03/28/2003

9

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AS-9

Office Action Summary

Application No.

09/824,050

Applicant(s)

ITO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7,8,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurihashi et al. (U.S. 5,644,010).

Kurihashi et al. disclose ink comprising resin liquid containing photoreactive monofunctional monomer such as hydroxybutyl acrylate and diethyleneglycol methacrylate and photoreactive bifunctional monomer such as diethyleneglycol diacrylates (col.1, lines 13-14, col.7, lines 36-37 and 42, col.9, lines 21-23 and 65, and col.10, line 1).

In light of the above, it is clear that Kurihashi et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2318356 in view of Snowwhite et al. (U.S. 6,359,025) and Ochiai et al. (U.S. 6,048,653).

GB 2318356 discloses ink comprising colorant, monofunctional monomer such as isobornyl acrylate and bifunctional monomer such as hexanediol di(meth)acrylate. It is disclosed

that the monofunctional monomer is used either alone or in combination with the bifunctional monomer (page 1, lines 4-6, page 3, lines 22-26, page 4, lines 21-25, page 5, lines 8 and 29, and page 8, line 32-page 9, line 6).

The difference between GB 2318356 and the present claims is the requirement in the claims of specific (a) monofunctional monomer and (b) bifunctional monomer.

With respect to difference (a), it is noted that the present claims require isobornyl methacrylate while GB 2318356 discloses the use of isobornyl acrylate.

Snowwhite et al., which is drawn to liquid resin composition, disclose the use of isobornyl methacrylate in order to produce composition with good flexibility. Snowwhite et al. also disclose the equivalence and interchangeability of isobornyl methacrylate, as presently claimed, with isobornyl acrylate as disclosed by GB 2318356.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use isobornyl methacrylate in GB 2318356, and thereby arrive at the claimed invention.

With respect to difference (b), it is noted that the present claims require nonanediol diacrylate while GB 2318356 discloses the use of hexanediol diacrylate.

However, nonanediol diacrylate and hexanediol diacrylate are homologs - compounds differing regularly by the successive addition of the same chemical groups, in the present instance, alkyl groups, and the courts have held, as found in *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), that compounds which are homologs "are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties".

Evidence to support this position is found in Ochiai et al., which is drawn to polymerizable compositions, and discloses the equivalence and interchangeability of nonanediol diacrylate, as presently claimed, with hexanediol diacrylate, as disclosed by GB 2318356 (col.13, line 5).

In light of the case law cited above, it therefore would have been obvious to one of ordinary skill in the art that the bifunctional monomer disclosed in the present claims is but an obvious variant of the bifunctional monomer disclosed in GB 2318356, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

8. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Snowwhite et al. (U.S. 6,359,025) and Ochiai et al. (U.S. 6,048,653).

EP 465039 discloses ink comprising colorant, monofunctional monomer such as isobornyl acrylate and bifunctional monomer such as hexanediol diacrylate. (col.2, lines 2-3 and 14-17, col.2, line 57-col.3, line 7, col.3, lines 12-15 and 30-31, col.4, lines 7-10, col.5, line 27, and col.7, lines 8-10).

The difference between EP 465039 and the present claims is the requirement in the claims of specific (a) monofunctional monomer and (b) bifunctional monomer.

With respect to difference (a), it is noted that the present claims require isobornyl methacrylate while EP 465039 discloses the use of isobornyl acrylate.

Snowwhite et al., which is drawn to liquid resin composition, disclose the use of isobornyl methacrylate in order to produce composition with good flexibility. Snowwhite et al.

also disclose the equivalence and interchangeability of isobornyl methacrylate, as presently claimed, with isobornyl acrylate as disclosed by EP 465039.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use isobornyl methacrylate in EP 465039, and thereby arrive at the claimed invention.

With respect to difference (b), it is noted that the present claims require nonanediol diacrylate while EP 465039 discloses the use of hexanediol diacrylate.

However, nonanediol diacrylate and hexanediol diacrylate are homologs - compounds differing regularly by the successive addition of the same chemical groups, in the present instance, alkyl groups, and the courts have held, as found in *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), that compounds which are homologs "are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties".

Evidence to support this position is found in Ochiai et al., which is drawn to polymerizable compositions, and discloses the equivalence and interchangeability of nonanediol diacrylate, as presently claimed, with hexanediol diacrylate, as disclosed by EP 465039 (col.13, line 5).

In light of the case law cited above, it therefore would have been obvious to one of ordinary skill in the art that the bifunctional monomer disclosed in the present claims is but an obvious variant of the bifunctional monomer disclosed in EP 465039, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

9. Claims 7-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Snowwhite et al. (U.S. 6,359,025), Ochiai et al. (U.S. 6,048,653), and Asai et al. (U.S. 5,446,082).

EP 465039 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as isobornyl acrylate and difunctional monomer such as hexanediol di(meth)acrylate (col.2, lines 2-3 and 14-17, col.2, line 57-col.3, line 7, col.3, lines 12-15 and 30-31, col.4, lines 7-10, col.5, line 27, and col.7, lines 8-10).

The difference between EP 465039 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require isobornyl methacrylate and nonanediol diacrylate while EP 465039 discloses the use of isobornyl acrylate and hexanediol diacrylate.

With respect to the monofunctional monomer, Snowwhite et al., which is drawn to liquid resin composition, disclose the use of isobornyl methacrylate in order to produce composition with good flexibility. Snowwhite et al. also disclose the equivalence and interchangeability of isobornyl methacrylate, as presently claimed, with isobornyl acrylate as disclosed by EP 465039.

With respect to the bifunctional monomer, it is noted that the present claims require nonanediol diacrylate while EP 465039 discloses the use of hexanediol diacrylate.

However, nonanediol diacrylate and hexanediol diacrylate are homologs - compounds differing regularly by the successive addition of the same chemical groups, in the present

instance, alkyl groups, and the courts have held, as found in *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), that compounds which are homologs “are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties”. Evidence to support this position is found in Ochiai et al., which is drawn to polymerizable compositions including inks, and discloses the equivalence and interchangeability of nonanediol diacrylates, as presently claimed, with hexanediol diacrylates, as disclosed by EP 465039 (col.13, line 5).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use isobornyl methacrylate and nonanediol diacrylate in EP 465039, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

With respect to difference (b), EP 465039 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Asai et al. disclose ink jet recording medium comprising image or ink receiving layer comprising polyester that has glass transition temperature of 40-70 °C. The motivation for using such recording medium is to obtain high quality images superior in color density, color reproducibility, and sharpness (col.1, lines 25-31 and col.3, lines 49-55).

In light of the motivation for using recoding medium with ink-receiving layer disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in EP 465039 on substrate which comprises such ink-receiving layer in order to high quality images superior in color density, color reproducibility, and sharpness, and thereby arrive at the claimed invention.

10. Claims 7-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2318356 in view of Snowwhite et al. (U.S. 6,359,025), Ochiai et al. (U.S. 6,048,653), and Asai et al. (U.S. 5,446,082).

GB 2318356 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as isobornyl acrylate and difunctional monomer such as hexanediol di(meth)acrylate. It is disclosed that the monofunctional monomer is used either alone or in combination with the difunctional monomer (page 1, lines 4-6, page 3, lines 22-26, page 4, lines 21-25, page 5, line 8 and 29, and page 8, line 32-page 9, line 6).

The difference between GB 2318356 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require isobornyl methacrylate and nonanediol diacrylates while GB 2318356 discloses the use of isobornyl acrylate and hexanediol diacrylate.

With respect to the monofunctional monomer, Snowwhite et al., which is drawn to liquid resin composition, disclose the use of isobornyl methacrylate in order to produce composition with good flexibility. Snowwhite et al. also disclose the equivalence and interchangeability of isobornyl methacrylate, as presently claimed, with isobornyl acrylate as disclosed by GB 2318356.

With respect to the bifunctional monomer, it is noted that the present claims require nonanediol diacrylate while GB 2318356 discloses the use of hexanediol diacrylate.

However, nonanediol diacrylate and hexanediol diacrylate are homologs - compounds differing regularly by the successive addition of the same chemical groups, in the present instance, alkyl groups, and the courts have held, as found in *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), that compounds which are homologs “are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties”. Evidence to support this position is found in Ochiai et al., which is drawn to polymerizable compositions, and discloses the equivalence and interchangeability of nonanediol diacrylate, as presently claimed, with hexanediol diacrylate, as disclosed by GB 2318356 (col.13, line 5).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use isobornyl methacrylate and nonanediol diacrylate in GB 2318356, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

With respect to difference (b), GB 2318356 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Asai et al. disclose ink jet recording medium comprising image or ink receiving layer comprising polyester that has glass transition temperature of 40-70 °C. The motivation for using such recording medium is to obtain high quality images superior in color density, color reproducibility, and sharpness (col.1, lines 25-31 and col.3, lines 49-55).

In light of the motivation for using recording medium with ink-receiving layer disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in GB 2318356 on substrate which comprises such ink-receiving layer in

order to high quality images superior in color density, color reproducibility, and sharpness, and thereby arrive at the claimed invention.

11. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Ito et al. (U.S. 5,912,085), Snowwhite et al. (U.S. 6,359,025), and Ochiai et al. (U.S. 6,048,653).

EP 465039 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as isobornyl acrylate and bifunctional monomer such as hexanediol diacrylate (col.2, lines 2-3 and 14-17, col.2, line 57-col.3, line 7, col.3, lines 12-15 and 30-31, col.4, lines 7-10, col.5, line 27, and col.7, lines 8-10).

The difference between EP 465039 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require isobornyl methacrylate and nonanediol diacrylate while EP 465039 discloses the use of isobornyl acrylate and hexanediol diacrylate.

With respect to the monofunctional monomer, Snowwhite et al., which is drawn to liquid resin composition, disclose the use of isobornyl methacrylate in order to produce composition with good flexibility. Snowwhite et al. also disclose the equivalence and interchangeability of isobornyl methacrylate, as presently claimed, with isobornyl acrylate as disclosed by EP 465039.

With respect to the bifunctional monomer, it is noted that the present claims require nonanediol diacrylates while EP 465039 discloses the use of hexanediol diacrylates.

However, nonanediol diacrylate and hexanediol diacrylate are homologs - compounds differing regularly by the successive addition of the same chemical groups, in the present instance, alkyl groups, and the courts have held, as found in *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), that compounds which are homologs "are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties". Evidence to support this position is found in Ochiai et al., which is drawn to polymerizable compositions, and discloses the equivalence and interchangeability of nonanediol diacrylate, as presently claimed, with hexanediol diacrylate, as disclosed EP 465039 (col.13, line 5).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use isobornyl methacrylate and nonanediol diacrylate in EP 465039, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

With respect to difference (b), EP 465039 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Ito et al. disclose ink jet recording material comprising ink receiving layer comprising polyester or styrene-acrylic copolymer. The motivation for using such recording medium is that it is superior in waterfastness with high gloss on the surface and is capable of producing high quality and high grade prints (col.1, lines 42-47, col.2, lines 49-53, col.5, lines 66-67, and col.6, lines 3 and 7),

In light of the motivation for using recoding medium with ink-receiving layer disclosed by Ito et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in EP 465039 on substrate which comprises such ink-receiving layer in order to produce high quality and high grade prints, and thereby arrive at the claimed invention.

12. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Ito et al., Snowwhite et al., and Ochiai et al. (U.S. 6,048,653) as applied to claims 7-8 above, and further in view of Asai et al. (U.S. 5,446,082).

The difference between EP 465039 in view of Ito et al., Snowwhite et al., and Ochiai et al. and the present claimed invention is the requirement in the claims of glass transition temperature of the polyester present in ink-receiving layer.

Asai et al., which is drawn to ink jet recording medium, disclose use of polyester in ink-receiving layer wherein the polyester has glass transition temperature of 40-70 °C in order to produce images with good heat resistance and blocking resistance (col.3, lines 49-55).

In light of the motivation for using polyester with specific glass transition temperature disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polyester in EP 465039 in order to produce printed product with good heat resistance and blocking resistance, and thereby arrive at the claimed invention.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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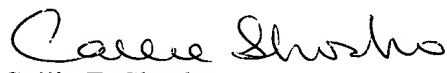
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

CS
March 21, 2003


Callie E. Shosho
Examiner
Art Unit 1714